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First Copy

The AMERICAN HOROLOGIST

INCORPORATING

HOROLOGY

THE NATIONAL MAGAZINE
FOR ADVANCEMENT IN TIMEKEEPING

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Make Satisfied Customers
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Made in the U. S. A.

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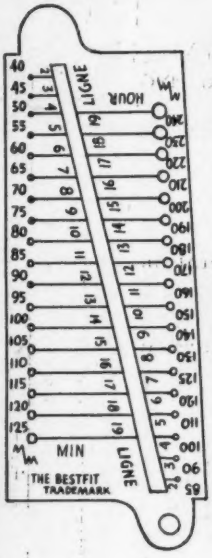
NINTH YEAR OF PUBLICATION

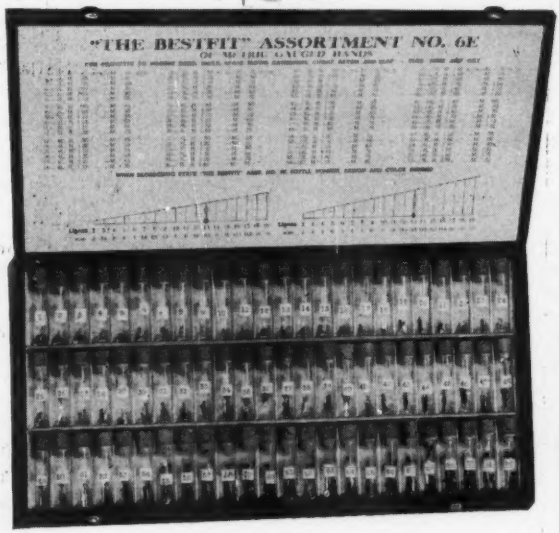
Vol. 9 JANUARY, 1942 No. 1

R v.9-10 1942-1943

The PROPER HAND *at Hand*
..everytime..all the time

Tech





Now you can be sure of selecting the proper Hand for all Swiss Watches—with every hand in one complete assortment. The famous BESTFIT Gauge immediately directs you to the bottle holding the Hand you are looking for; FREE with THE BESTFIT ASSORTMENT No. 6E. Included are 12 dozen pairs of hour and minute Hands, 2 through 19 ligne. This is all the stock you require—and you reorder only those Hands you actually need. BESTFIT Metric Gauged Hands come in Blue, Gilt and Wine in the following shapes: Index, Moon, Cathedral, Cubist, Stick, Leaf, R.R. Index and Thin Stick.

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Tech.

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This is a well-made lamp with many desirable features, such as the gooseneck arm which proved so practical for many years when incandescent bulbs were used. The aluminum reflector is 18" long and is complete with one blue and one white tube. The two tubes have separate switches so that either one or both may be used. Together they throw a well diffused and concentrated light (so much so, that tests showed it was unnecessary to move the position of the lamp when the watchmaker uses his bench lathe). The lamp is durably finished in bronze colored crackle enamel, and is handsome enough for use on the counter as well as the bench. We are offering these lamps at only $9.95 complete with tubes for a LIMITED TIME ONLY, dependent upon the demand made on our stock, but in no case will it be very long. You can make a big saving by ordering immediately.

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NINTH YEAR OF PUBLICATION

The AMERICAN HOROLOGIST

Incorporating HOROLOGY

Published Monthly

By Roberts Publishing Co., Denver, Colorado, in the interest of the Horological & Jewelry Industry.

To advance Education | To assist in Obtaining State Legislation | To Develope Standardization | To Encourage & Recognize Effort & Ability

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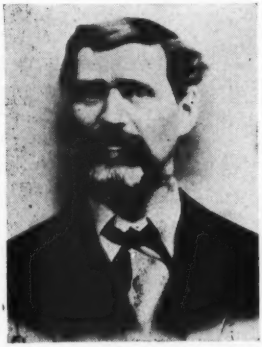
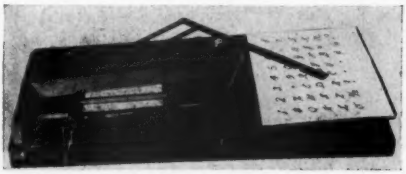
First Typewriter Invented by Watchmaker

Strange truths continue to prove watchmakers have contributed more to science and industry than any other calling outside of chemistry.



ABNER PEELER

While in Iowa two years ago, at their state watchmakers' convention, I was receiving watchmakers contributions to industry, and discovered several enlightening contributions to our already lengthy lists of facts. My exceptional good fortune in meeting the sons of two Iowa watchmaker inventors will add to our historical wealth of knowledge, and we know there are thousands of such cases if only we could unearth them.

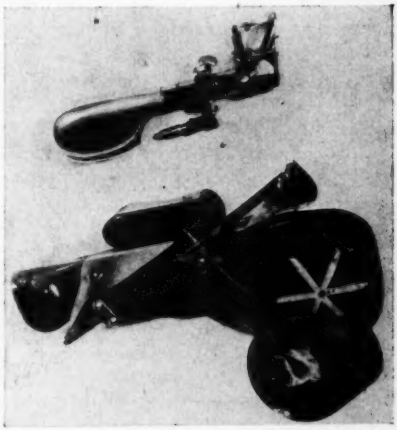


First Typewriter

Our typewriter inventor, Mr. Abner Peeler, back in 1857, in Webster City, Iowa, worked out an idea with the result that the first typewriter saw the light of day and was finally patented on August 14, 1866 under the U. S. Patent No. 57,182, and described as a "new and useful machine for writing and printing."

Mr. Peeler, however, did not reap much profit as is the usual inventor's plight; he sold his claims for $3,000.

Peeler also invented the air brush, the greatest step that has ever been taken in fine art. He also invented the self-threading sewing machine shuttle, which was sold to the Singer Sewing Machine Company's agent G. G. Ferguson of Ft. Dodge, Iowa in 1882.



Upper photo, latest air gun. Lower reproduction, first air gun.

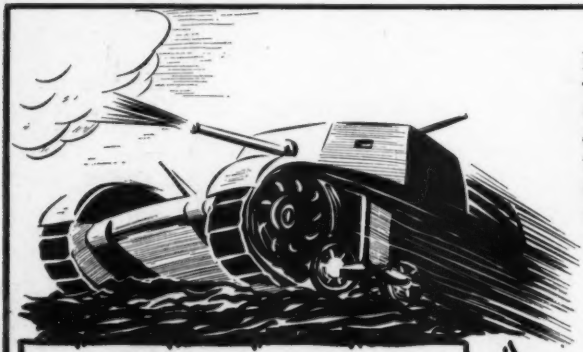
This inventive genious also created a compressed air rifle, which was considered by our government to be so dangerous that it was suppressed.

The lives of many American watchmaker inventors are packed with human interest, but space-only allows the brief highlights.

Mr. Peeler's son, W. R. Peeler, of Los Angeles, possesses the original typewriter and air gun, and expressed his desire to dispose of them to historical museums or anyone interested in such relics.

ODD But TRUE

By Weil



IN WAR TIME A TIMEPIECE IS AS IMPORTANT AS A GUN. IN 1916 THE RUSSIAN ARMY REQUIRED 50,000 WATCHES – HAD ONLY 11,000.

FOR ADVERTISING PURPOSES – A CLOCK HAS BEEN DEVISED WHICH HAS A COMIC FACE. IT ANNOUNCES THE TIME IN WORDS AND SPOUTS AN AD AT THE SAME TIME!

REPRESENTATIVE COWEN OF SPOKANE, WASH. PRESENTED EACH HOUSE PAGE BOY WITH A GOLD WRIST WATCH RECENTLY FOR THEIR GOOD WORK.

MOST POLISH WATCHES OF THE 15TH CENTURY DIVIDED THE DAY INTO EIGHT PARTS. LOCAL WATCHMAKERS COULDN'T WORK OUT A 24 HOUR DAY OR 12 DIVISIONS.....

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WATCHMAKER 'A':
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L&R NO. 1 WATCH CLEANING SOLUTION
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Gallons $3.00

L&R WATERLESS NOFOME CLEANER
New! Sensational! Perfect results: dissolves in Rinse. Prevents rust. Non-explosive.
Quarts 85¢ Gallons $3.00

WATCHMAKERS: Don't gamble with your customers by working with inferior cleaners. The best is easiest and much more profitable in the long run. See your jobber for a supply of L&R today. Make sure NOW to order a sufficient quantity. Existing conditions demand foresight. Your jobber recommends L&R. Ask for a demonstration of L&R Machines, too.

We both insist on **L&R**—
... products that guarantee perfect watch cleaning

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Largest Manufacturer of Watch Cleaning Machines & Solutions in the World!

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Sensational watch oil discovery!

Elgin scientists perfect non-spreading . . . non-corrosive . . . non-gumming new lubricant. Of ideal viscosity and unaffected by ordinary temperature changes, M-56a ranks as the finest watch oil ever developed.

WORKING with an unlimited appropriation and after years of painstaking labor, Elgin scientists have perfected a remarkable new lubricant. It is called M-56a.

So perfect is the consistency of this new oil, that it will not spread on the steel, brass, or jewel surfaces of a watch. It gives constant protection between the delicate moving parts.

NON-CORROSIVE, NON-GUMMING. Under rigorous tests, samples of brass and steel immersed in M-56a for 120 hours at 212° F. proved conclusively that this new oil was non-corrosive . . . Other exacting laboratory experiments showed that M-56a would not oxidize, evaporate, become rancid, or form gum under the most trying conditions.

The new M-56a achieves a new high degree of "oiliness" without corrosiveness. Such high "oiliness" reduces friction . . . saves wear on delicate watch parts.

M-56a UNAFFECTED BY EXTREME TEMPERATURE CHANGES. In hundreds of tests, M-56a proved its ability to stand up under temperatures from +120° F. to —20° F. When lubricated with ordinary watch oils, identical watches either ran irregularly or stopped, but performed very satisfactorily when lubricated with M-56a.

M-56a NOW USED IN ALL ELGIN WATCHES. Thus having met successfully the most exhaustive laboratory tests, as well as having given highly satisfactory performance under actual running conditions, M-56a is acclaimed as the most ideally perfect watch oil ever developed. M-56a is now the standard lubricant in *all* Elgin timepieces. It is sold by authorized Elgin Genuine Material Distributors at $1.50.

ELGIN NATIONAL WATCH COMPANY

ELGIN, ILLINOIS, U. S. A.

War Demands And You

Watchmakers can fill many positions now opening up in Government Defense work, but just because you happen to be practicing the art does not prove you are capable of filling precision instrument work openings. Such men are being used as rapidly as special demands are placed.

To those seeking some sort of work in plants serving our Government, we refer you to the United States Employment Service.

In a letter just received from Washington, D. C., we quote:

"Your letter of December 18 stating that large numbers of your members are eager to utilize their skill in the service of the Federal Government is greatly appreciated."

"As you are probably aware, there is an Employment Service in each state in the country. Together these services constitute a nation-wide system of Public Employment Services which are now recruiting workers for the defense program. Local offices are situated in approximately 1,500 cities throughout the country. All of these local offices are advised of work opportunities in their respective communities, and through the nation-wide clearance facilities of the United States Employment Service they are also aware of job openings in other localities."

"Accordingly, we suggest that your applicants be advised to register at the nearest local office of the Employment Service in order to obtain suggestions and counsel concerning the manner in which to find adequate employment to aid in war-time production."

Should there be any question on the part of State or Government agencies, as to properly classifying watchmakers, refer them to "Federal Security Agency;" "Currently Active Occupations Series;" "Interviewing Aid for Watchmaker," 4-71.510, Number 1A-41.

This is the Government "Occupational Analysis Section," dealing with our profession.

There is another avenue open, that of Civil Service.

A Timely Suggestion

By PRESIDENT ANDREW PARK

From Horological Society of New York Bulletin

"We have read so often in the papers that there is a dire shortage of both skilled mechanics and precision machinery that we have begun to accept it as the truth."

"Every American who has the interest of his country at heart has thought about this problem and some means to aid or help relieve the shortage in question."

"There are roughly in the U. S. A. about 40,000 watchmakers of varying abilities and skills. It is a safe estimate that over half of them possess one or more horologists' or instrument makers' lathes, many with even more elaborate equipment. While the greater part of the watchmakers are engaged in non-defense projects, we are sure that they would be more than willing to devote at least two hours a week to their country in producing with their equipment whatever the OPM might find worth while for them to do."

"The OPM could make a survey of the various industries to find out what small precise parts could be produced by such a process and then delegate the local Horological organization to distribute the work to these patriotic volunteers who might render their services with or without remuneration. If 20,000 watchmakers, or even half that number, make themselves available, it will mean 20,000 man hours of production a week. If a factory were to employ men of this skill and produce just what we propose they do, this factory, working on a fifty hour week, would have to employ 400 men. Considering the fact

that no plant would be needed, this possibility offers to the government a means for easing a shortage which definitely exists."

"This suggestion further opens the possibility of enlisting men other than horologists; men who own small bench lathes, grinders, drill presses, radio mechanics, amateur astronomers and many other intelligent skilled Americans who would only be too glad to make their abilities available to the government for no other consideration than investing in a democracy."

To watchmakers who are willing to participate in such a program we invite your correspondence, so indicating and setting forth your ideas, as we have officially presented this offer to our Government agencies.

How Freedom?

How can freedom be acquired? By force? No. By knowledge and the proper application of scientific knowledge.

This applies to wars, to personal desires and business.

You and I are interested in our Government's safety; in our personal safety; in freedom from any and all exactations, which may include personal or freedom from financial obligations. How this freedom; how can I better serve my Government, self and family?

The answer is extremely simple and certainly possible. "Better and more complete knowledge of my profession."

How to acquire it? Use the National's Group Educational program. It is available to you individually if your guild is not utilizing this educational program. Just write to the National office or this paper and full details will be sent at once. There are no obligations.

"Seek knowledge and acquire freedom."

To U. H. A. of A. Members

During the past year the United Horological Association of America has completed many accomplishments. These have been enumerated from time to time in your copy of THE AMERICAN HOROLOGIST. During the same period the industry is proud of the things we have done and the gains we have made.

All this has been possible because of the interest the individual member took in the organization. The strength of the United Horological Association is not in the State or in the National organization, but in the individual member and his Guild. You are the contact we have with the public and on your actions depends our standing in the communities.

Your officers deeply appreciate the fact that you have seen fit to associate with us and help us this year. We hope to see you at a meeting of your Guild so that we may personally tell you how much we enjoy your support.

With the coming of another year many problems confront the Horologist. The problem of war and possibly the problem of the sort of peace which will follow the war. Two duties also confront us; the duty we owe our country and the duty to our fellow watchmaker. While we can accomplish some good while working individually, the most beneficent results can be obtained when working thru an organization such as the United Horological Association of America.

Won't you get in touch with your Secretary if you have not already done so and renew for 1942 today. We need your help and membership more than ever.

Fraternally yours,

ORVILLE R. HAGANS,
National Executive Secretary
U. H. A. of A.

"Modernize with Security"

THE CARD-INDEX MAINSPRING SYSTEM

1 AND 2 DRAWER STEEL CABINETS

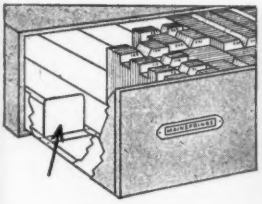
*Operates just like a Card Index Filing System, as shown at left.

*Index Fitting is everlasting—steel, cadmium plated.

*No limit to number of sizes in each drawer as system is:

*Extremely flexible—each drawer holding from 1 to 250 springs.

*Cabinets furnished with an Index Card for every size on Security Mainspring Chart.



SECTION OF DRAWER

Showing the metal dividers and the sliding self-locking tab that holds envelopes erect regardless of how few may be in the section. Each drawer will easily hold from 2½ to 3 gross of the bracelet size springs.

SECURITY SYSTEMS

No. 21—1 Gross Security Mainsprings, Bracelet Sizes, in 1-drawer Indexed Cabinet **$32.75**

No. 22—1 Gross Security Mainsprings, Bracelet Sizes, in 2-drawer Indexed Cabinet **$34.50**

SYSTEMS IN REGULAR PARTITIONED CABINETS

No. 3—Bracelet Sizes Only

2 Drawer Cabinet 1 Gross Springs

A System of Bracelet springs only, 144 different kinds, and includes many for the new baguette sizes as well as springs for Bulova and Gruen models. Glycine and Longine if desired. No. 3.

Price Complete **$32.25**

No. 4—Bracelet, 12 and 16 Sizes

2 Drawer Cabinet 1 Gross Springs

This system contains 144 of the most used sizes, selected from a list of 270 Springs. No. 4.

Price Complete **$32.25**

No. 5—Bracelet Sizes Only

1 Drawer Cabinet ½ Gross Springs

This system contains bracelet springs only—the 72 best sizes used in System No. 4, and makes a very desirable selection of bracelet springs.

No. 5. Price Complete **$16.80**

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Abrasives

By L. T. CHRISTOPHERSON

Several technical publications, within the last year, have dealt quite extensively with the treatment of abrasives, and have proven valuable to the people who are using grinding and polishing materials.

L. T. Christopherson at his work bench

In our daily routine we use many kinds for the different operations at hand. I am of the opinion the ones which we use the most would be in order named: Arkansas Oil Stone powder, Diamondtine, Crocus Powder and Diamond Powder.

Presuming that there are some readers of this article who use these various abrasives just as they come from the supply house and find at times that these powders are not quite satisfactory will find a simple check test which will be of value. Arkansas Oil Stone powder and pumice are used quite extensively in the reduction of balance pivots and pinions and inasmuch as it is not quite uniform in the granules—some dissatisfaction may occur.

In order to avoid such trouble use a steel slab and a stiff spatula ground off to about 3 inches long and at end of blade sharpen on a 45 degree at right angle to the blade, then place a small amount of the powder on steel block to which has been placed a small amount of oil, preferably liquid petrolatum, then rub the powder with quite a little pressure to a smooth paste, being sure that you use oil sparingly. This method is also used on other grinding powders, except diamond. When you have rubbed out powder so that it feels smooth, scrape it off the slab and place on your tin slip polishing block. This block should have several compartments, each one of which should contain a different abrasive. When you desire to grind some flat pieces the abrasive is always available and always of the right consistency, whether you desire to use crocus powder on pivot polisher, wig-wag, or tin slip.

Regarding diamond powder, do not use this on the polishing block. Keep separate and use olive oil as a mix. In checking diamond powder, it is necessary to use a small crusher. I have one which is very adaptable for this abrasive. I use a round block of hard steel 2 inches high and 1½ inches in diameter. In center I have a round depression 10 MM across the top edge. Be sure that the pestle fits closely. To check your diamond powder, place therein a small quantity with a little olive oil and use pestle in a grinding motion. Use a lot of pressure until mixture is smooth. Remove mixture, using a very small spatula, and place in a slim glass vial to which some gasoline has been added. Shake well and let stand about 24 hours and use the top settlings for fine polish. It is just right to use for removal of pits in end stones. I have a special diamond lapp used for that purpose. Should you wish to experiment on a formula of your own in the grinding of different materials, a small crusher of this kind is valuable. I might add that diamond abrasive is one of

the most costly, yet it is inexpensive because so little of it is used. There is nothing that will take its place. Do not use crusher in which you check your diamond powder for any other kind of abrasive. Therefore it is well to make two of these crushers, so that you will have the extra one for other than diamond powder.

"Unusual Workmanship, by Charles Braun"

Dr. Charles Braun of Weiser, Idaho, in his spare time converts ordinary lever watches in to chronometers. At a recent meeting of the Union Pacific railroad watch inspectors Dr. Braun exhibited an old 14 size Waltham watch to which he fitted a chronometer escapement. The illustration shows this watch but the exacting and delicate construction is best appreciated by seeing the watch itself.

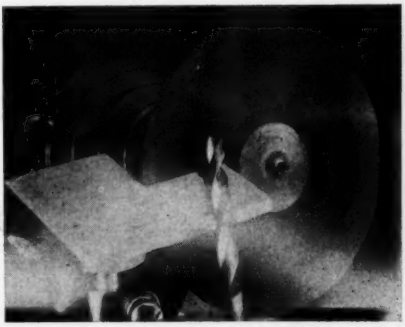
Tilting Saw Table

By JES I. HANSEN

Photographs and Drawings by W. H. Samelius

The photo illustration and drawing shows the manipulation and construction of an adjustable saw table, which has many advantages.

The table may be titled for the purpose of refacing pallets or tilted to suitable angles for grinding drills. The attachment is easily constructed and can be built on the watchmakers lathe.



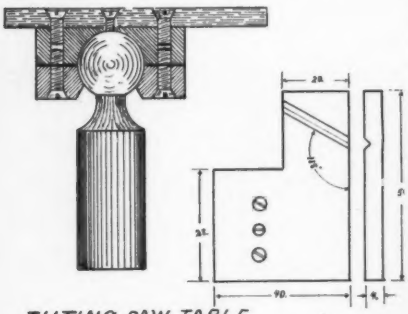
The top plate may be made of soft machine steel to suggested dismensions. The ball and socket joint de-

pends somewhat on the size of tool post. The split socket can be made from brass, one half the socket being fastened to underside of plate and the ball end of the post held friction tight by the lower half of socket. The diameter and thickness of these sockets depends on the diameter of the ball. Proportions taken from the drawing will suffice for the completed tool.

A small lock screw inserted

through the plate, contacting the ball, will lock the plate rigidly in place.

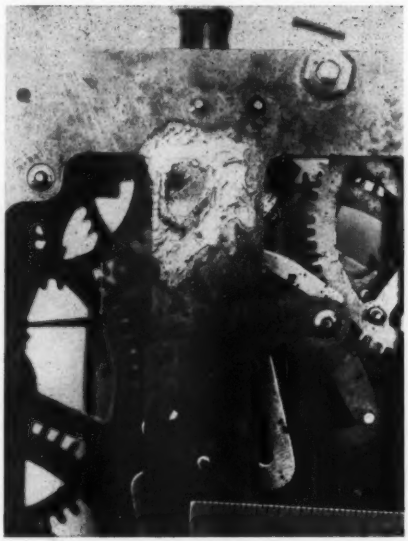
The time spent in making up a tilting saw table will repay itself many times over, as it can be used for many other operations such as, fac-



TILTING SAW TABLE. W.H.S.

ing springs, makes an excellent support for grinding squares or for sharpening tools. The time saved and satisfaction in carrying out the work, makes it a pleasure.

"Reasons for Legislation"



Submitted by J. E. Coleman
Soft solder and acid plus ignorance

A NEW ELGIN DEVELOPMENT

M-56a WATCH OIL

Scientists on Elgin's Industrial Fellowship at Mellon Institute, in collaboration with Elgin's Research Department perfect non-spreading, non-corrosive, non-gumming new lubricant.

Price Per Bottle $1.50

A sure source of supply for M-56A Watch Oil, or any watch or jewelry material.

FRIEDMAN-GESSLER CO.

Wholesale Only

220 W. 5th St. Michigan 1131

Los Angeles, California

Practical Manipulation of the Hairspring

By G. L. SHARP
Drawings by W. H. SAMELIUS

The relative points of attachment of the hairspring to the collet and stud, with reference to the horizontal line, slow and fast point of attachment, is clearly explained in previous articles by Mr. Walter J. Kleinlien and Harold B. Kelly, and is not necessary for this article to monopolize too much time and space on that part of the subject.

As we are told, an isochronous hairspring is one that will cause the long and short arcs of the balance to be made in equal time, and that certain pinning points of the spring to the collet and stub must be established in order to produce this result.

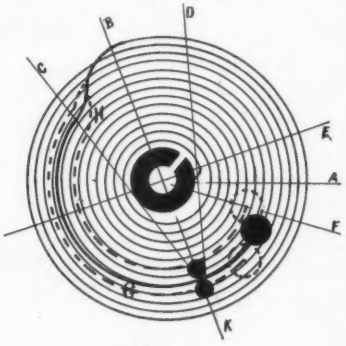


Fig 1

We also learn, by adjusting the overcoil in toward the center of the spring, as shown by the dotted line "H" Figure 1, the short arcs of motion will be fast compared to the long, and if the overcoil is formed near the outside of the main body of the spring as shown by the dotted line "G" Figure 1, the result will be the opposite and the long arcs of motion will be fast compared to the short arcs.

Experiment seems to reveal a number of other vital points to be considered, as it can plainly be seen that we have four overcoils here, and no two of which are adjusted the same, and yet, they are all practical overcoils. In this connection the thing that would seem to be theoretically correct does not hold good in practice.

Further experiment seems to reveal that the length of the overcoil in relation to the way it is adjusted, together with the proper location of the pinning points, seemed to be the controlling factor in producing a center of gravity of the hairspring and balance wheel combined, as well as isochronism.

True isochronism can only be obtained with the watch running in the horizontal position, as any other attempt to obtain isochronism may result in some poise error, due to the spring not being true in the round or slightly off center which would show an isochronal error in the vertical position but would prove to be isochronous in the horizontal position.

In determining the proper length of the overcoil we draw the line "B" from the regulator pins "K" through the center of the collet which should be in line with the shoulder, or first bend in the overcoil. This arrangement will be found quite uniform in the original construction and adjustment of hairsprings in high grade watches.

If the overcoil is drawn in to the dotted line "H" Figure 1, this would shift the stud forward, and in this instance the balance is thrown out of beat. When the collet is turned to bring the stud back in the original position or in the proper position to place the balance in beat again the entire spring has been changed throwing the balance unit out of poise, with the first bend in the overcoil shifted to the dotted line "D" and the pinning point at the collet from the horizontal line "A" to a location at the point "F", and in this instance the distance from the regulator pins "K" to the outer coil on the opposite side of the spring shown by dotted line "D" is not as great as the distance from the regulator pins to the

outer coil on line "B", as can be seen by the curved lines "I" and "J", in this instance the position rate will be effected as well as the isochronal rate. Where there is a close rate in five positions, there will also be a very close isochronal rate.

Assuming that the overcoil is the proper length, and is adjusted to the outside as shown by the dotted line "G", and the spring is turned to place the stud back in the proper location. This will shift the first bend in the overcoil to a location at the dotted line "C", and the pinning point at the collet from the location at the intersection of the collet and horizontal line "A" to the dotted line "E" which is slightly approaching the slow pendant point of attachment and will throw the balance unit out of poise by the force of gravity with the action reversed.

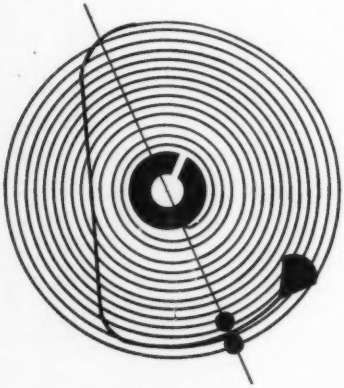


Fig 2

If the overcoil is properly formed as shown by the solid line Figure 1, and the first bend in the overcoil is located at the dotted line "D", and the collet point of attachment on the horizontal line "A" it is too long and will be necessary to bring a portion of it back into the main body of the spring so as to place the bend on the line "B", if it is found to be located at the dotted line "C" with other points correct, it is too short and will have to be made longer.

There seems to be no fixed rule governing the method to be used in truing and leveling hairsprings and if satisfactory results are obtained is all that is necessary, but the spring should be trued around the collet first and for my own use, a pair of jeweled calipers with an adjustable screw "stop" is very satisfactory.

Place the balance wheel in the calipers with the spring attached and give it little spin and watch the first three or four inside coils and if they appear to be crawling away from the

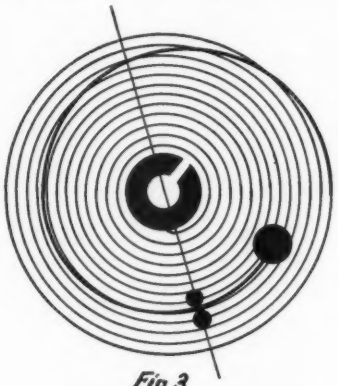


Fig 3

collet, something like the waves leaving a spot where a pebble has been thrown in a pond of water, it is true, but if the coils have a jerky motion the spring is not true, and will be necessary to bend the inside coil at some point to center the spring around the collet.

After this is provided for, remove the spring from the balance and fasten it to the balance cock just as if it were attached to the wheel. Lay the cock on the bench, bottom side up and sight straight down through the collet, and if the hole in the hole jewel is in the center of the hole in the collet, the spring is centered, and if not, it can easily be determined at which point or points, to bend the overcoil to bring the spring in the center.

Assuming that other conditions of the watch are correct, slight deviations from the required precision will be found in different watches, depending upon the length of time they have been in use. A hairspring will

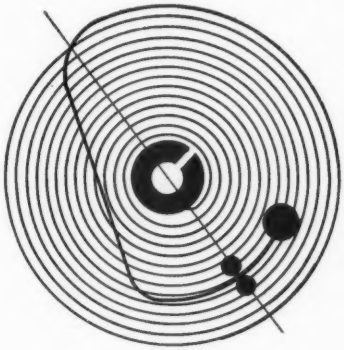


Fig 4

lose a certain amount of it's elasticity in time, just as the mainspring will and the loss of elastic force by either will effect the time-keeping qualities of the watch, and the verticle rates will be effected more than the horizontal rates.

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3		70	71 72+	73	74	75 76+	77	78 79+	80	81 82+	83	84	85 86+	87	88	89 90+
4	91	92	93 94+	95	96	97 98+	99	100	101 102+	103	104 105+	106	107 108+	109	110 111+	112
5	113	114 115+	116	117 118+	119	120	121 122+	123	124	125 126+	127	128	129 130+	131	132 133+	134
6	135 136+	137	138 139+	140	141	142 143+	144	145	146 147+	148	149 150+	151	152 153+	154	155 156+	157
7	158	159 160+	161	162 163+	164	165	166 167	168	169 170+	171	172	173 174+	175	176 177+	178	179 180+
8	181	182 183+	184	185 186+	187	188 189+	190	191	192 193+	194	195	196 197+	198	199 200+	201	202
9	203 204+	205	206 207+	208	209	210 211+	212	213	214 215+	216	217 218+	219	220 221+	222	223 224+	225
10	226 227+	228	229	230 231+	232	233 234+	235	236	237 238+	239	240 241+	242	243 244+	245	246	247 248+
11	249	250	251 252+	253	254 255+	256	257 258+	259	260	261 262+	263	264 265+	266	267 268+	269	270 271+
12	272	273	274 275+	276	277 278+	279	280 281+	282	283	284 285+	286	287 288+	289	290	291 292+	293
13	294 295+	296	297	298 299+	300	301 302+	303	304 305+	306	307	308 309+	310	311 312+	313	314	315 316+
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16	362 363+	364	365	366 367+	368	369 370+	371	372 373+	374	375 376+	377	378	379 380+	381	382 383+	384
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19	430 431+	432	433	434 435+	436	437	438 439+	440	441 442+	443	444 445+	446	447 448+	449	450	451 452+
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22	497 498+	499	500													

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470	20	12/16+
471	20	13/16
472	20	14/16
473	20	15/16+
474	20	15/16+
475	21	1/16
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497	22	+
498	22	1/16
499	22	1/16
500	22	2/16

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425	16	12/16
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418	16	7/16

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367	16	3/16+

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309	13	10/16+
310	13	11/16
311	13	12/16
312	13	12/16+
313	13	13/16
314	13	14/16
315	13	15/16
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Straightening Balance Pivots, Straight

D. E. OVERSTREET, *Kiowa, Kansas*

I use R. E. Dorrington pivot lathe, fastened to front edge of bench, using 20 x microscope that I fastened to a heavy base that extends 6 inches back of microscope tube. When turning wheel in lathe and at same time watching through microscope, one can be sure of pivots truth.

I have a brass arm 4 inches to right of lathe, that I turn up, to rest one end of heavy steel pivot tweezers against, as a guide, grip pivot tight and turn lathe. Repeat this until pivot spins perfectly true.

I have tested this and proved it on railroad watches, then bringing to the official 6 seconds in 72 hour rate test. I find many a watch that pivot looks true until tested by turning in lathe.

This also burnishes and smooths pivot. I use the above 100 per cent if pivot is cut or damaged, and I replace it with a new staff.

Hitler's Gift Used Against Him

Freddy Tomlins, British Royal Air Force, on leave to skate at the Ice Carnival held in Seattle, December 5th and 6th, may time his effort to peddle destruction to Hitler by a watch which was the gift of Adolf to him.

The watch bears the engraved message "To our dear Freddie Tomlins in remembrance of his skating in the Berliner Sport Palast, March 29 to April 4, 1937." Tomlins, then 20 years old won the International skating championship in the Berlin Sport Palast, April, 1937, by defeating Horst Farbar, German national champion.

Tomlin tells the time "through courtesy of Hitler," and adds, "Of course, I wish Hitler were as reliable as the watch."

Sponsored by Herman R. Pedrick, Philadelphia, Pennsylvania

(Editor's Note): This column will be devoted to "practical bench ideas," under the sponsorship of Herman R. Pedrick, member of the Technical Board of the U.H.A.A.

You are urged to send in your ideas to the publication, regardless of what your little bench quirks may be. Let's have them—they may help the other fellow.

Preparation of Steel to Make a Balance Staff

1. Hardening Steel—Select a suitable piece of soft drill rod or stub steel for the job in hand. Wrap binding wire five or six times around it and leave about a four or five inch length of wire to hold in fingers. Cover with soap and heat to a cherry-red color or slightly more. Plunge in cold water, end first. It should now be white in color. Clean off the scaling to a polish with emery cloth or sticks.

2. Annelling Steel—To annel use a material lid or box and roll the steel back and forth watching the color very carefully. When it becomes a dark blue with a little tinge of purple, drop it into water or benzine to stop further annelling.

3. VERY IMPORTANT — To check on No. 1 and No. 2 to be sure steel is suitable for staff—Now turn a conical pivot on one end with the graver auot a .14 or .15 m/m pivot. Using pivot straightening tweezers, bend the pivot off center, now straighten. Bend it again and straighten. Now bend it a third time and at the next try at straightening it should break off. If the pivot breaks on the first or second attempt clean the blue off again and reblue it to a dark blue and try again to bend and straighten. Steel prepared as above will be soft enough to turn nicely, hard enough to polish well, and hard enough to give good service in the watch.

Perspiring Hands

By L. C. MCALLISTER

In your November issue "Information Please", J. J. asks, "Can you advise what to do for hands that perspire?"

For twenty years I have had this same condition, until about a year ago. It is a nervous condition, caused by constipation from constant bench work.

I studied a book written by Dr. Munroe of the Placid Lake, N. Y. Health Club, "Man Alive You're Half Dead." A book of the month. I recommend that J. J. send two dollars for this book. He will learn more about eating habits and how to really correct his trouble, than any diet given by general practitioners. If he will do this, I know it will solve his problem.

Dishwashing and Time

Speaking of time, the average American housewife spends four years of her life time washing dishes. Oh, dear!

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Attend the 1942 National Convention
Chicago—May 17-19

OPEN FORUM

NOTE (This column is yours uncensored or edited. We assume no responsibility for statements made.)

By J. H. HUFF, *Flagstaff, Arizona*

"Just a word in addition to the article in the November issue of the AMERICAN HOROLOGIST by Mr. Pentcheck regarding the method of finding the troubles between the fork and roller table.

"His method is very good so far as he went, but there is at least one more test that I think should be made.

"In performing all the tests he gives, it is very evident that all are made with the watch lying flat on the desk D. D. postion. Now should the roller jewel be so low as to just clear the guard pin all would be O. K., but due to the fact that the pallet arbor has or may have more end shake than does the balance staff, then in turning the watch in the D. U. position the roller Jeweler could then come in contact with the guard pin either stopping the watch or rubbing enough on the pin to retard the motion of the balance and impair the possibility of regulating.

"In the December issue I see where one asks how to remove finger marks from a cleaned movement. I say, don't put them there in the first place. What is watch paper made for? Some will say they cannot use it in handling small movements. Why not? I do, if one will use it on all work it will soon become very easy. In touching the balance with a finger take a piece of small paper and fold it over the end of the finger holding it in place with an elastic band."

Food for Thought for All Watchmakers and Watch Manufacturers

By J. H. HUFF

I would like to say a word or two, or rather comment a little regarding some of the articles published in The American Horologist magazine.

First, in regards to state legislation governing the license of watchmakers, I would enjoy very much doing everything I can to push this idea through.

It is a disgrace the kind of work we see being done by these so-called cheap jewelers or watchmakers. I am sending you an imitation jewel which I found placed in a 16 S-21 J South Bend adjusted to 5 position. This piece of metal was used as a balance foot hole jewel. Also the staff had one pivot badly bent (naturally) and one mean timing screw was gone. The watch had been returned to the owner and a charge was made for the repair work.

How can we get rid of such fakes?

Second, regarding your Resolution No. 5 in the July issue. This is my idea exactly, but how can it be done? I might suggest that a request form be signed by all members of the U. H. A. A. and sent to the manufacturers, or some such thing be done as a united group and explaining our point of view on the subject. We do not handle drugs; we do not sell drygoods; or run a hardware store. Our business is the sales of jewelry and the sales and maintenance of time-measuring instruments. Then why not let us have that business, and cut the drug stores and son from butting into our line; we let theirs alone!

Third, in regard to training the public in regard to the proper care of the timepieces, can you suggest any method by which we can get the manufacturers to include, or rather supply the jewelers who sell watches and clocks, with small pamphlets of a few pages, brief but to the point, explaining the proper care of the watch. I believe the cost would be small in regard to the good it would do. I believe such pamphlets printed and sent out by the manufacturers, signed by them, would go a long way toward getting watches out of the

hands of the watch bungler. Yours for success.

Professional Services vs. Price

(Letter from F. C. Sheldon of Anthony, Kansas to Peacocks, of Wichita, Kansas, in protest of their cut-rate or standard repair prices advertised.)

"Dear Sirs:

Excuse my forwardness and if I am mistaken correct me, Perhaps I am stepping out of my field and 'sticking my neck out.'

"When I consider the cost of having my watch repaired. I cannot help but remember the character of the professional service I am about to employ. To provide that service competently, the professional watch repair man must spend years in acquiring the knowledge, experience, and skill that is needed. Much money must be invested in precision instruments and equipment.

"I remember, too, that in all professions prices must be in a measure, commensurate with the services rendered. Incompetent men have to sell their services for less. No one knows what a product or service is worth better than the man who is selling the product of service.

"Why advertise that your watch repairers are not up to average and must therefore sell their profesional services below the average."

EXAMINERS TO MEET

During the 1942 National Convention—May 17th to 19th Inclusive—Hotel Morrison, Chicago, members of the Wisconsin, Indiana and Oregon State Examining Boards will hold a joint meeting to discuss their problems, experiences and ideas as administrators of licensing laws.

Those who live on the mountains have a longer day than those who live in the valley. Sometimes all we need to brighten our day is to rise a little higher.

—ANON.

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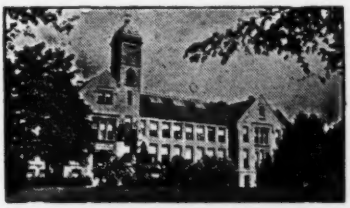
WATCHWORK
JEWELRY
STONE SETTING
ENGRAVING
Bradley Polytechnic Institute School of Horology
DEPT. B PEORIA, ILL.
Established 1896

Chronological Index Of The Principal Events Which Have Contributed To The Progress Of Chronometry

(Translated by GEO. GRUEN *from pamphlet issued by "Le Journal Suisse d'Horlogerie" in* 1895.)

B. C.

740 Ahaz, king of Judea. His sun-dial.

580 Anaximander of Miletus, invented the sphere and taught the Lacedaemonians how to construct sun-dials.

400 Plato, disciple of Socrates, inventor of the ancient clepsydra, or night clock.

350 Aristotle speaks of the invention of tooth wheels, later attributed to Archimedes.

250 Archimedes of Syracuse, inventor of a sphere with tooth wheels, the motive power of which is unknown.

100 Ctesibius of Alexandria. His clepsydra with tooth wheels.

80 Possidonius, Greek astronomer. His moving sphere which was. according to Derham, a piece of clock-work, not a clepsydra.

A. D.

490 Theodoric, king of the Ostrogoths, sent to Gondebaud two clocks, one a sun clock and the other a hydraulic clock.

721 Y-Hang, Chinese astronomer. Hydraulic clock with wheels, marking the movement of the planets.

809 Haroun-al-Raschid sent to Charlemagne a brass clock moved by a clepsydra.

850 Pacificus, archdeacon of Verona. To him is attributed the invention of the escapement and the use of weights for motive power.

990 Gerbert, monk of Aurillac, became Pope under the name of Sylvester II. To him is attributed the same invention as to Pacificus.

1326 Richard of Wallingford, English Abbot, inventor of the oldest clock. According to Gesner, there was no other like it.

1344 Jacques de Dondis, physician-astronomer, of Padua, made a planisphere clock, which for a long time excited the admiration of the learned.

1350 Jean de Dondis, son of the foregoing, set up at Pavia a clock even more remarkable, which

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Nye's Superior Watch and Clock Oil is 100% American Product. The first quality pure porpoise jaw oil is scientifically refined in our own plant, New Bedford, Mass.

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brought the surname of "Horologius".

1370 Henry de Vick constructed at Paris the first clock for Charles V.

1382 Philip "The Bold", Duke of Burgundy, had the clock of Courtrai carried off and placed at Dijon.

1389 Reception of the clock of Rouen, constructed by Jean de Felains, a clock which is still in existence.

1484 Valtherus. First astronomical observations with a clock having weights.

1500 Peter Henlein, of Nuremberg, constructed the first pocket watch.

1530 Gemma, called the Friesian, proposed to use clocks for measuring the longitudes on sea.

1560 Tycho-Brahe, Swedish astronomer, possessed three or four clocks. The largest had three wheels, of which the first had 1200 teeth.

1570 Conrad Dasypodius made the plan of the clock at Strassburg, executed by Habrecht—father, son and grandson.

1577 Moestlin measured the diameter of the sun by means of the vibrations of a clock. Kepler was his pupil at Tubingen in 1589.

1587 Introduction of the watchmaking industry at Geneva by Chas. Cusin, of Auton in Burgundy.

1590 Gruet, Geneva watchmaker, conceived of replacing the catgut with a steel chain in watches having a fusee.

1595 Galileo discovered and applied the law of the pendulum.

1598 Nicolas Lippius, of Basle, was commissioned to repair the celebrated astronomical clock at Lyons.

1656 Christian Huyghens, Dutch astronomer, applied to clocks the pendulum with cycloidal curve.

1660 Dr. Hooke applied a straight regulating spring to watches. He invented the escapement with two balances.

1666 Jean Picard, French astronomer, was the first to observe the variations in various temperatures of clocks with pendulum.

1673 Jean Richer, French astronomer, was the first to observe the contraction of the pendulum under the Equator.

(To be continued)

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and allows plenty of hand space. No grinding or polishing, the edges are perfectly finished. HERE IS A CRYSTAL THAT IS SIZED TO FIT ACCURATELY.

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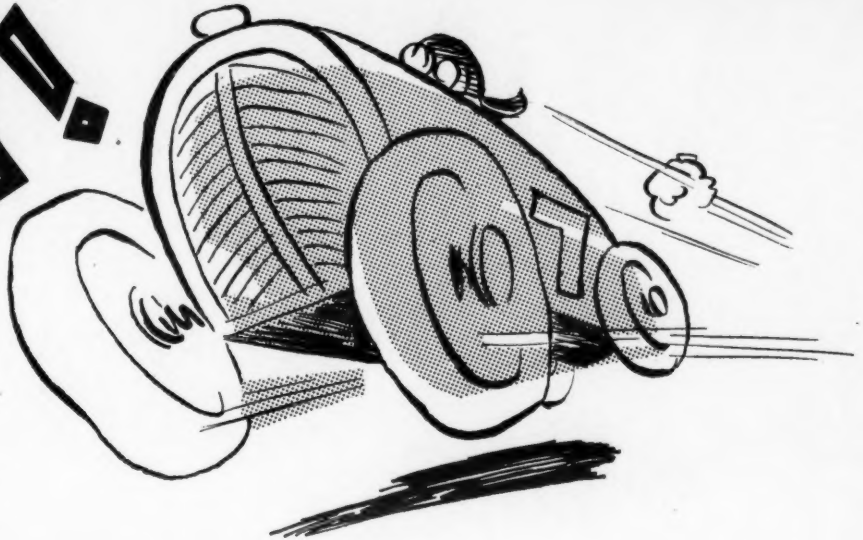

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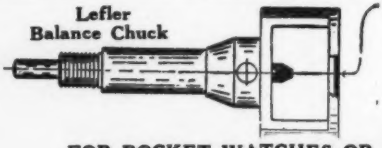
Professor Einstein Defines A Clock . . .

From New Zealands Horological Institute Paper

When an horologist attempts to define a clock his mind immediately pictures it as a machine. That is the way he understands it best. Science, of course, has an entirely different angle of approach. Here it is from "The Evolution of Physics"—

"The primitive subjective feeling of time flow enables us to order our impressions, to judge that one event takes place earlier, another later. But to show that the time interval between two events is ten seconds, a clock is needed. By the use of a clock the time concept becomes objective. Any physical phenomenon may be used as a clock, provided it can be as exactly repeated as many times as desired. Taking the interval between the beginning and the end of such an event as one unit of time, arbitrary time intervals may be measured by repetition of this physical process. All clocks, from the simple hour glass to the most refined instruments, are based on this idea. With the hour glass the unit of time is the interval the sand takes to flow from the upper to the lower glass. The same physical process can be repeated by inverting the glass.

"At two distant points we have two perfect clocks showing exactly the same time. This statement should be true regardless of the care with which we verify it. But what does it really mean? How can we make sure that distant clocks show exactly the

Lefler Balance Chuck

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FOR POCKET WATCHES OR BRACELET AND BAGUETTE
Price For Standard Lathes $7.00 Each (State Size & Lathe)
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same time? One possible method would be to use television. It should be understood that television is used . . . I could stand near one of the clocks and look at a televised picture of the other . . . but this would not be a good proof. The televised picture which was sent a short time before, whereas on the real clock I see what is taking place at the present moment. This difficulty can easily be avoided. I must take television pictures of the two clocks at a point equally distant from each of them and observe them from this point . . . if two good clocks observed from the midpoint of the distance between them always show the same time, then they are well suited for designating the time of events at two distant points, etc., etc."

Closing Hairspring Collets

By J. EARLE VANATTA

As I am a member of the Capitol City Guild and enjoy reading your paper very much, and see Mr. J. A. Beimel's article on closing a hairspring collet that has been forced over a staff that was too large, I want to give you a method I find very easy and satisfactory.

I take a piece of peg wood and sharpen it to a long taper and insert it into the collet, and select a chuck that will just take the collet, and put it in the lathe and screw the chuck enough to bring the collet back to shape. You will find it will come back to a perfect shape.

The idea of the peg wood is that it will give enough so it will let the collet back and not break. I have found this method very satisfactory and it saves a lot of work and time.

I hope this will help some one as it has me.

ANNOUNCING
1942 National Convention
Hotel Morrison—Chicago
May 17th to 19th
Our Finest Convention

Playing The Game

We sit in a game which men call Life,
  And Fate is a dealer there;
And oft, with a feeling of anger rife,
  We call the play unfair.
There are times when Luck seems only to frown
  Whenever we lead or dare.
And we're ready to throw our cards all down
  And finish the game right there.

Yet that is the time we must play the game,
  And play it strong and straight;
For the turn will come; and what a shame
  If we haven't the nerve to wait!
We must play the game with the cards we hold,
  No matter what Fate may deal;
We must play with a smile and a manner bold,
  No matter how down we feel!

We must play the game as best we know,
  Though the deal be fair or ill;
We must play, though the stake be high or low,
  For the turn must come—and will,
For it's only a test when Luck retards
  A player's winning spell.
The secret of Life's not in holding good cards
  But in playing a poor hand well!

—UNKNOWN.

Plan to Attend the National Convention—May 17-19—Hotel Morrison, Chicago.

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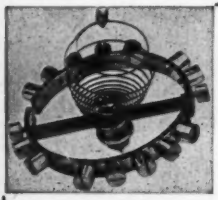

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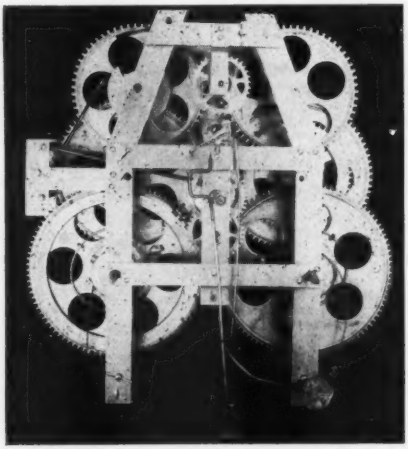
Interesting Early American Clock

W. H. SAMELIUS

Accompanying photograph illustrates one of our early American clocks built on production basis. The movement itself is nine inches high and seven inches wide, considerably larger than our modern clocks. The frame is assembled by rivets and narrow bars, the wheels being punched from brass with large openings to



conserve material and weight, the wheel being strengthened by means of a groove pressed below the root diameter. The wheel teeth are perfectly square. The pinions are of lantern type, each pinion leaf being pivoted and acted as rollers.

The gearing is unusual as the fan pinion has only four leaves and the escape wheel pinion has five leaves, all other pinions have six leaves. The drum for winding cord is made of lead and the clock strikes hours only.

The driving weights are seven pounds. There is no identification marks as to who the manufacturer was and perhaps some of our readers might enlighten us as to maker and dates.

Horological Society N. Y.

The Horological Society of New York held its December meeting on Monday evening, December 1st.

Mr. Andrew Park, president, opened the meeting by welcoming the members and guests. Mr. Park announced that the chairman of the various committees would make some important reports. Mr. Henry B. Fried, corresponding secretary, spoke of future meetings among which were lectures on metallurgy, drafting, heat treatment of metals by noted authorities and technical lecturers.

A suggestion was made that the society buy a completely equipped watchmaker's lathe with all modern attachments to be used by members of the technical committee to render instruction to members and to be used as part of a suggested clinic for watchmaker's troubles. This was received with enthusiasm and a committee composed of Mr. Sasek, Mr. Fried, Mr. Goldstein and Mr. O'-Shaugnessy was formed by Mr. Park to further investigate this matter.

Mr. I. Lemer and Mr. Mac Schwartz, chairman of the journal and banquet committee spoke on the coming banquet to be called the 76th Anniversary banquet of the Horological Society of New York to be held on February 22nd at the Park Central Hotel. They told of the fine evening of entertainment consisting of the entire floor show of the Cocoanut Grove Revue.

Mr. Park introduced Mr. Van Laar, president of the New Jersey State Watchmaker's Association, who spoke on the fine work of the New York Society and in particular praised the articles on Blue Print reading for watchmaker's which is appearing currently in the monthly bulletin of the New York Society's small bulletin. Mr. Van Laar spoke of his organization's efforts in securing legislation and told of its early possible realization.

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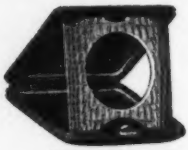

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Angular Pendulum

By W. H. SAMELIUS, *Director*
Elgin Watchmakers College

This type of pendulum is formed of two pieces, or legs, like a sector, and suspended by the angular point "A". This pendulum is constructed with a view of diminishing the length of the common pendulum, and at the same time maintain, or even increase the time of vibration. In this pendulum the time of vibration depends on the length of the legs and on the angle contained between conjointly, the duration of the time of vibration increasing with the angle. Consequently, a pendulum of this construction may be made to oscillate in any given time.

At the lower extremity of each leg is a ball or the usual bob, and if it vibrates half-seconds when the legs are closed, it will vibrate full seconds when the legs are opened, so as to contain an angle equal to 151° 2′ 30″.

This pendulum is used on occasions when it is desirable to have a pendulum vibrate long portions of time and when the situation will not admit of a pendulum of the usual construction, but it is not suited for any purpose where accuracy is required.

The difficulty of compensating this pendulum and the great and fatal

tendency it has to wabble, or swing in an elliptical plane, renders it unsuitable for purposes where precision is an object.

Charles Hoese

One of Dayton's oldest watchmakers. Mr. Hoese was 81 years of age. He was one of Dayton's pioneer families, and extremely well liked by all who knew him.

He was actively engaged as a watch repairman for 60 years, and was one of the first men to participate in our National Workman Competition. In 1937 he was awarded first prize for tool and lathe work. He was a charter member of the Dayton Guild.

Proprietor Association

The Proprietor Watchmakers Association of San Francisco held their annual holiday dinner party, January 8, with a good attendance, and the usual good fellowship prevailed.

Defense Savings Pay-Roll Allotment Plan

How company heads can help their country, their employees, and themselves

voluntary pay-roll allotment plan

helps workers provide for the future;

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Business heads are adopting the Voluntary Pay-Roll Allotment Plan as a simple way for every worker to start a *systematic* and *continuous* Defense Bond savings program. It is a sensible step toward reducing the ranks of the post-war needy. It will help spread the financial participation in national defense among all of America's wage-earners. It will materially retard inflation by "storing" part of our pyramiding national income, thus reducing the demand for our diminishing supply of consumer goods.

In emergencies, America doesn't do things "hit-or-miss." **We would get there *eventually* if we just left it to everybody's whim to buy Defense Bonds when they thought of it. But we're a nation of businessmen who understand that the way to get a thing done is to *systematize* the operation. That is why so many employers are getting back of this voluntary savings plan.**

All you have to do is offer your employees the convenience of having a fixed sum allotted from each pay envelope to the purchase of Defense Bonds. Each employee who chooses to start this savings plan decides the denomination of the bonds to be purchased, and the amount to be allocated from his wages each pay day. You deliver a bond to the employee each time his allotments accumulate to a sufficient amount.

Plenty of help available. **The Treasury Department is ready and willing to give you all kinds of help. Local civilian committees in 48 States are set up to work with you just as much as you want them to, and no more. We will supply most of the necessary material.**

The first step is to take a closer look. **Writing for details in no way obligates you to install the plan. It simply indicates that you'd like to do *something* to help keep your people off relief when defense production sloughs off; *something* to enable *all* wage-earners to participate in financing national defense; *something* to retard inflation and store up tomorrow's buying power. So, write for the free kit of material being used by companies that have installed the Voluntary Defense Savings Pay-Roll Allotment Plan. Address: Treasury Department, Section A, 709 Twelfth Street NW., Washington, D. C.**

DEB—OF 12

6

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We issue no price lists. Estimates upon request only.

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We do not sell materials nor do dial work, and such specialties performed by others, as advertised in this paper.

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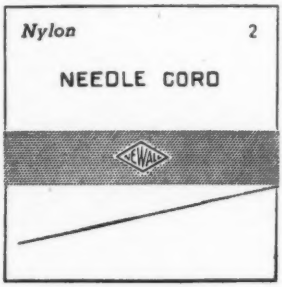

Length 72 Inches

The needle is already attached on this new twisted Nylon cord. Each card is in a transparent cellophane envelope.

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Be Sure to Ask for
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Per dozen Cards.....$1.50

No. 20 Display Card
(2 Dozen Assorted Sizes)
Each $3.00

Your Jobber can also furnish Newall Nylon Bracelet Cord

An Electric Clock Which Does Everything Except Think

By MAJOR WILL TALSEY

An electric clock which tells the time of the largest cities in the world, sounds chimes, plays a harp and an organ, predicts weather, sends a statue of Uncle Sam parading arm in arm with the Goddess of Liberty, recites Lincoln's Gettysburg address at the exact hour the Emancipator-President was laid to rest, and a host of other things, has made it appropriately called "the clock that does everything but think."

This clock is 12 feet tall, four feet wide and 32 inches deep and is made of 5000 pieces of wood taken from 32 different kinds of trees. Miles of wire regulate the intricate mechanism. The material alone cost over $5000 and the clock is valued at $50,000. It is a practical timepiece, ingeniously contrived by electricity and is the fruit of patience, tenacity and time.

The clock was made by Marvin Shearer in his workshop in Akron, Ohio. He spent 15 months alone in drawing the blue prints for the master-piece and seven years in building it. Now he has thrown the blueprints away to make sure that there will not be another to match its marvel.

In more detail the clock does the following which are only a few of its accomplishments. It has 27 dials. At a quarter to the hour, the chimes ring out soft and low. At a quarter after, a harp sounds a sweet melody. On the hour and half hour, a reedless pipe organ peels out his music.

The clock pays honor not only to the memory of the Civil War president but also to the other martyr presidents, namely, William McKinley and James Garfield. At the hour of McKinley's funeral the organ plays softly the beautiful hymn "Lead Kindly Light." At the hour of Garfield's services it plays another hymn, "Gates Ajar."

The small figures of Uncle Sam and the Goddess of Liberty leave their pedestal once an hour, enter elevators on each side of the face of the clock, descend to a balcony, join hands and go for a stroll around the base of the timepiece. The base of the clock is a model of Akron's new passenger depot. It is encircled by a minature train which stops in front of the station after completing seven laps on the tiny track. Above the station is an electrical water cascade in a moonlit mill scene. Sixteen lights in the waterfall change color constantly. Other lights of the clock change with the tones of the organ and the harp.

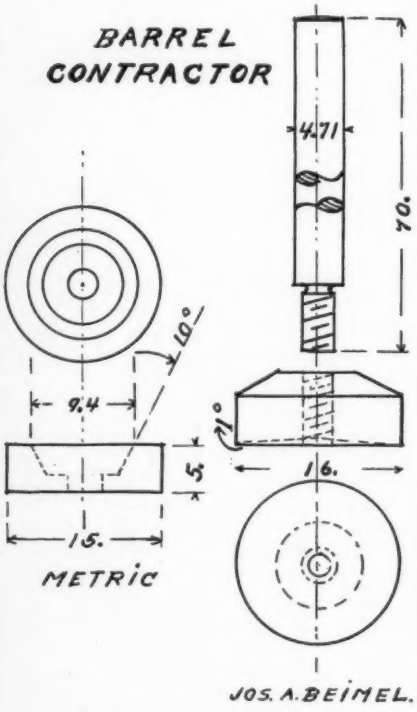
Revolving pictures on the front panel depict events in the world history from 1492 to the present year. On the rear panels are portraits of the leaders of the five most important countries of the world. The clock is made in sections and can be taken down and put up again in less than an hour. It is truely a marvelous timepiece and justly merited to the title of "the clock that does everything but think."

Barrel Contractors

By Jos. A. BEIMEL

A barrel lid as well as the recess which receives and holds the lid will eventually become worn due to the frequent removal of the lid itself. This condition as well as the spreading of the barrel recess prevent the lid from holding firmly and the lid will spring off. Sometimes it will hold until the watch is assembled and wound, then the additional pressure of the mainspring against the lid forces it off. Most workmen of course will start hammering and denting the barrel lid or its rim. This of course will hold the lid firmly but will also throw the barrel out of alignment which will cause the barrel to wobble while rotating and it may contact either the plate or one of the train wheels. This is especially the case when performed on thin model watches. The recess which holds the

barrel lid should be evenly drawn in at all parts of its circumference. This must also be done carefully otherwise the barrel rim may be distorted. Reducing the barrel's circumference so that the lid will fit and hold firmly may still be safely accomplished by the use of barrel contractors used years ago. But due to the variety of barrel diameters of today it is necessary to prepare suitable discs to accommodate barrel to be contracted. In preparing such discs it is better to make a few blank discs and recess



them later when occasion arises to contract the barrel rim of some loose fitting lid, rather than make a complete set most of which will never be used anyway. Make these blanks without the 10 degree recess shown in the drawing. They may be turned from bar stock of brass or bronze or even sawed out of some plate brass. these are drilled to fit your small arbor chuck. Machine to a diameter of about 15 M. M. more or less depending on the size of your barrel as well as the step of wheel chuck into which it is next placed in order to face off both sides of the disc. After you have made a few of these discs all that remains to be done is to set your slide rest to a 10 degree angle and recess one of the discs to suit a barrel which needs repairing. For instance the disc shown in the drawing was made suitable for receiving an 18/0 size barrel which just enters the 10 degree recess. The threaded bar with its threaded disc may be made next. This rests upon the barrel and forces it into the recess and contracts the barrel's circumference. This threaded bar or driving rod with its 1 degree taper also shown in the drawing can be made by first selecting a brass or bronze rod of 4.71 M. M. diameter which fits the average K & D staking set. The rod may be placed into a wire chuck and machined and threaded to fit another slightly larger disc also threaded and fitted to the rod after which it may be turned to size shown in the drawing. It should receive a slight taper to prevent the disc from forcing the barrel at the center while it is being driven into the recess. When used in your staking set the rod is first passed through your punch receiver and the threaded disc is attached. Under this you place your disc which receives the barrel. Center these and see that your barrel contacts the lower discs recess evenly. Then a few taps of the hammer will force the barrel rim inward. If used without the aid of your staking set more care is needed to hold the rod vertically to prevent forcing the barrel to one side.

Best Ever — Features, Speakers, Plans, Fun at the National Convention — Hotel Morrison, Chicago— May 17th-19th.

Reminiscences of an Apprentice

"Our Watchmaker"

Submitted by W. H. SAMELIUS

Our watchmaker was a few years older than I was. He had partly learned his trade in a neighboring town, and after he went to New York for a couple of years and returned with the concentrated essence of all the knowledge that exists and that great center of skill and experience. He knew the way to do everything and there was nothing he did not understand. Any one of the innumerable descriptions of clocks and watches were all the same to him, and he was equally skillful in jewelry and silverware. As a general thing, the young men of our town were jealous of him after he came back and blamed him for "spreading himself out", "putting on airs", etc., but I noticed some of my companions who had been to cities not half as big as New York, came back aand put on airs too and surely, our watchmaker had the right to spread himself out farther, seeing New York a far larger city and he was the longest away from home. People were fond of telling a story about him, although I never believed it, that when he arrived home from New York, he asked the porter at the railway station the way to his mother's house; but you see, people in country towns are so ready to make remarks about people better than themselves. Supposing the story is true, however, was it any wonder, one being in New York so long, and learning so much, should forget all about the streets of our little insignificant town? Some incredulous persons may think that a head containing all the knowledge he possessed, might burst, and so it might, only that his mouth and tongue acted as a safety valve and prevented any such catastrophe. I always considered our boss to be a clever man, but I thought our watchmaker to be far greater because he had been to New York and talked a great deal about it, while our boss had never been there and could not talk so much. When the two got into any little argument about the work that was being done, as sometimes they did, our watchmaker would invariably silence our boss by telling him that was the way we did it in New York; but although silenced, our boss would shake his head, smile and insist on having it done his way, the same as he did with me, which I thought was presumptious on his part.

Our watchmaker did not make his drills or sharpen them as well as I could, but then I thought, that in such a great place as New York, they might have some ways of making holes without drills, which might account for his making bad ones. I also noticed his gravers neither were so evenly ground or whetted as mine or my bosses were; but I tried to explain in my own mind, that in New York, they kept a man for the purpose of sharpening gravers, which would account for our watchmakers want of experience in this particular field. The pins that he made were neither one sharp or the other, but I did not think much about that because it could not be expected that a man who had been to New York would condescend to be particular with such a trifling little thing as a pin. Our boss sometimes spoke to him about the condition of the points of his screwdriver, that they bruised the heads of all the screws in the watches; but I thought it mean of our boss to grumble so much about so common a thing as the point of a screwdriver, which I did think was altogether below the dignity of a man who had been two years in New York. And why should he not have trade secrets after being in the city? He would not tell any of them to our boss and it could not be expected he should either; but he often promised to tell me something if I would do certain things for him and in this way he would get me to do a great

(Continued on page 42)

AERONAUTICAL INSTRUMENT SERVICE

Aircraft Instruments

EDITOR'S NOTE—Aeronautical Instrument Service is a subject untouched by publications in the Horological field, or in fact by any publication. In September, 1938, THE AMERICAN HOROLOGIST inaugurated such an educational service via prepared illustrated lectures to be used by U. H. A. A. organizations for the purpose of broadening our members' scope of knowledge in this field, which offered additional remuneration to those far-sighted enough to avail themselves of such knowledge.

ARTICLE NO. 28

Aeronautical Instrument Hints Case Leaks

By IRA W. LEONARD

Case leaks are a very important factor contributing to inaccurate results from the airspeed indicator, the sensitive type altimeter, and the rate of climb indicator. In other types of aircraft instruments case leaks do not affect the accuracy but may make their operation unsatisfactory in other ways. For instance, a case leak in the vacuum driven gyro instrument could cause a drop in vacuum sufficient to interfere with their correct operation. Leaks in connecting tubing are very frequent and many instruments are changed when the trouble is actually elsewhere. That, of course, is not up to the repairman, but is for the mechanic who does the installation to find and repair.

Airplane cockpits are also exposed to wind driven dust, rain, and even water from a carelessly directed hose from which the internal instrument mechanisms must be protected. Therefore the front of the case of all instruments should be at least water and dust tight, even though slight air leaks may not be detrimental. On those instruments where a vented case is desirable the manufacturer has left a small hole in the case in some harmless inconspicuous place. This hole should, of course, be kept open but every effort should be made to do a neat thoro job of sealing the glass, even on clocks and tachometers.

For the past year or so, many instruments of the higher grade have been made with the bezel or light ring attached to the case with eight screws. These usually have a thick, black paper gasket between the glass and bezel and a gasket between the bezel and case body of artificial rubber, probably neoprene. In most instruments, however, the glass is still held in with a snap ring and to make these air tight and still neat is sometimes quite a problem. The generally accepted method is to press a bead of sealing compound around the edge of the glass and then force the snap ring carefully and uniformly into this cement until it finally snaps into place. The surplus cement can then be wiped off with a rag or scraped off with a chisel shaped piece of peg wood.

There are probably a number of possible sealing compounds packaged for this particular purpose that are more or less successful. Such compounds should be thick and substantial enough to not flow but still they should not harden. They should be a dull black or a very dark gray and should not be dirty or messy to apply. There is a commercial product used to seal various kinds of leaks by plumbers, auto mechanics, and carpenters known as "Vulcatex." This is

a heavy cement filled with asbestos fibers and seems to be ideal for sealing instrument glasses as well as a host of other jobs. It is also put up in one pound cans and labeled "Instrument Sealing Compound." Another very successful substance of a finer grain is ordinary artists modeling clay made black by thoroly mixing in an indefinite amount of lamp black. This is rather messy to prepare but one lot could last for years.

Remember that appearance is a big factor in aircraft instruments and the successful repairman will do his best to duplicate the finish the factory left. While flying the plane the pilot is interested only in the dial graduations and the pointers. All the rest should be as inconspicuous as possible, which means usually a dull or frosted black.

Do your part by leaving no reflecting areas, no bare bright metal and no marks of poor workmanship, such as scratches, bent or marred dials or distorted pointers or snap rings.

Note—To properly insert a snap ring, first place the two ends tight together at the bottom center of the groove. Starting from this point work around in both directions and let the last little loop sort of glide in place. A sudden snap here sometimes starts a crack in the glass. To remove a snap ring, of course, the part that went in last should come out first, and the rounded, blunt end of a large pocket knife is ideal for starting this job.

Pointers

By IRA W. LEONARD

The pointer of aircraft instruments is another small part that can and frequently does give the repair man some bad moments. In most cases the pointer is pressed quite tightly on a shaft with a very slim taper. Many pointers are made of very thin aluminum or aluminum alloy and have a brass hub riveted in. These

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hubs are generally quite long and therefore have a large area of contact with the tapered shaft and are sometimes very difficult to remove. The workman is further hampered by the fact that this thin, flexible pointer is coated with luminous paint which will crack and chunks come loose with even mild mishandling. The fingers and greasy rags should not touch this luminous paint as smudges and discolorations are hard to remove and to repaint the pointer, a job to be avoided if possible. For cleaning purposes, the pointer can be immersed in carbon-tet for a few moments and wiped. Avoid putting luminous paint in any cleaning liquid that might possibly be a solvent for the paint. A soft pencil eraser will frequently remove smudges successfully and a speck of Le Pages transparent cement can be used to reinstall a flake of luminous paint that has come loose if refinishing is impractical.

On most altimeter, airspeed indicators and rate of climb indicators the pointer staff is small (possibly .020") and very hard. On such instruments it is not unknown for a pointer staff to break—actually to pull in two before the pointer will come off. Needless to say, the best method is with a K & D type hand remover that has a fine punch to push the staff from the pointer if the dimensions are applicable. The hand is usually too far from the dial to permit the use of the prying type of hand remover and this type isn't recommended anyway because of the danger of pulling the staff in two. To help eliminate positions errors the pointers of these instruments should be carefully balanced by applying a bit of quick drying cement on the back side of the light end. If the pointer is badly out of balance the brass counterweight on the short end, if one is present, may be filed or low melting point solder applied to the back side. A good balancing tool is a short piece of very fine steel wire in a pin vise or stuck in a special wooden handle. To replace a pointer we made a hollow punch from aluminum with the end about one eighth inch in diameter. One very light tap from a very small hammer is all that is needed for this type of pointer. The better grade of these instruments have jewels for the pointer staff so go very easy on the hammer.

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Another type of pointer to be handled carefully is made of lucite or other plastic and is used in conjunction with a lucite dial on many pressure gauges in the past few years. Used in very hot localities these pointers sometimes soften and bend towards the dial, thus becoming useless. Also on landing gear gauges that get very severe changes in pressure, the pointer frequently becomes just loose enough on its brass hub that inertia will cause the hub to move without it. Later the cause of the pointer displacement may seem very mysterious. These pointers are quite large, are driven on very tightly, and are beyond the ability of most available pullers to remove. The mechanic with a few spare moments will do well to make a convenient universal puller.

Maninfold pressure gauges with these plastic pointers and dials are quite common and they are forever requiring that the pointer be removed and reset at the proper point. They seem to have a small but continual variation due to age, and in most cases there is nothing necessary or possible except to reset the pointer to the atmospheric pressure existing at the moment. Manifold pressure gauge cases must be absolutely tight with either pressure or vacuum equal to ten pounds per sq. in., so be careful to have the glass held in securely. For the purpose of withstanding this ten lbs in 2 of pressure, shatterproof glass is used, which of course, must never be replaced with ordinary glass.

Pressure gauges are relatively crude and insensitive instruments with plenty of power available so the pointer need not be perfectly balanced. On the other hand don't neglect this point altogether. It is well to observe the pointer on all instruments with the case held in different positions on the final check so a big position error won't slip by, and spoil your budding reputation.

Don't forget to vibrate the instrument, possibly by tapping with your pencil, when making a test to help eliminate friction errors. With a little practice, you can sort of shiver the instrument as you hold it in your hand with just as good results as from an elaborate vibrator.

Mr. N. B. Toelg, Connecticut

Mr. N. B. Toelg, one of the most active members of the New London and Norwich Guild passed away January 5, 1942. Funeral services were held from his home.

The watchmakers and jewelers of the New London and Norwich Guild will miss this dynamic character, who has led them forward in their work during the past years.

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(Left) View in Spartan's Instrument Technician Department.

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State..... Age.....

(Continued from page 37)

many things I had no business to do. When he told me any secrets, it was always something our boss had told me before or something I knew without any body telling me; but then I was too young to be able to understand the big secrets and I waited patiently until I should get older.

If our boss was home for a day or two, our watchmaker usually attended to the customers and on these occasions he fairly teemed with New York fashions and styles in jewelry; and if that had not the desired effect on the customer, he treated them bountifully with selections from his stock of Cockney phrases. Some of the customers were perfectly delighted with the clever young man and thought he ought to have a shop of his own, and thought our boss was an old fogey. Other customers, again, if they could not wait until our boss came home, would transact their business with me. Our watchmaker did not like this and told our boss that I was not polite with the customers; but it was only because I would not tell lies and say the things all came from New York, when I knew very well many of them were made in our own shop, and I also knew that our boss always wanted me to tell the truth. One day, however, I got square with our watchmaker and I kept myself square with him ever after. He was putting a watch together and asked me to hand him a bottle of mucilage. I got the mucilage for him and I wanted to see what he was going to do with it when putting a watch together, but he turned his back and told me to go away, that I would find out soon enough; so I went away, thinking it might be some of his big secrets that I was too young to comprehend. Some way or other, however, I looked over his shoulder and saw him fastening in a screw with mucilage that had overturned with him when putting the watch together. "Oh," says I, "Is that the way you used to do it in New York?" and I quite innocently remarked that when a screw overturned with the boss, he always made a new one. He was awful mad at my seeing him and got up and chased me around the benches with a large stick until I promised not to tell the boss when he came home; and as I never had any intention of telling, I consented to his proposition on the condition that he would never tell anything more about me and the bargain was closed to the satisfaction of both of us.

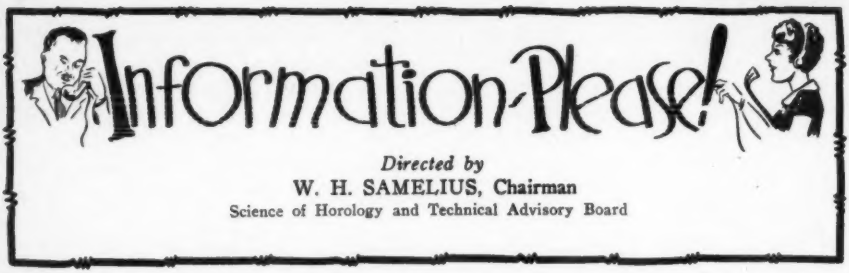
Our watchmaker had the most profound contempt for books and magazines on any subject connected with the trade. He made it a point never to believe anything about the business that he saw in print. Cumming's Elements were all nonsense, Reid's Treatise made him go to sleep; and for Berthoud and Jurgensen's works, they were only foreign gibberish. All the old works were antiquated, and no modern workman could derive any benefit from them; and as for new publications, they were nothing but humbug, and he knew it, for had he not been two years in New York. What more was necessary for him to be a judge? A friend sent him some of the early numbers of the New York Horological Journal regularly, but, although it came from New York, he never read a word of it, but our boss always read it through and through when he could get a copy, and I liked to read it too; but here I must remark that neither our boss nor I had been to New York, which may account for us having the desire to read the Journal. I have seen our watchmaker tear it up and use it as wrapping paper, just to show how little he required the teachings of any journal or book connected with the trade. I remember a man used to come around at times to take orders for a trade journal that was in the course of publication. He always happened to call when our boss was out, or I think he would have sub-

scribed. I liked to glance over the sample copies and I wished I had enough money to be a subscriber, for I saw many things of interest to me, but our watchmaker was far sharper than I was and was not to be imposed upon so easily. He flung the publication at the man and said it was nothing but an advertising dodge; that in New York, the wholesale watch dealers gave away illustrated catalogs which contained more information than the publication did, and gave them for nothing; so you will observe, nobody could impose on our watchmaker, he was very sharp and clever.

There was a half-pay army officer, a resident of our town, who had great proclivities for science, and a weakness for using high language. He never would call a spade a spade, or his watch a watch, his watch was a "Horologium" and some times he would come into the shop to get the "horologer" to eradicate the defects of his Horologium. About the time of one of his visits, one of our townsmen had taken out a patent on an improvement on frictional gearing and it was the general subject of conversation in our town at that time. Our boss remarked he was always under the impression that friction was not caused by the extent of the rubbing surfaces, but by the pressure that was upon them; but in this frictional gearing the surfaces were made large, apparently to create friction and thus prevent the wheels from slipping; so our boss asked the learned visitor how the theory that there was the same amount of friction in a narrow surface as in a broad one could be reconciled with the results obtained by the experiments made to establish the efficiency of frictional gearing. Our learned visitor replied that the reconciliation of the theory in the one instance, and the practice in the other, were exceedingly simple; and went on to explain that "in applicate mechanics two quiescent discs with their periphery free from abrasion or dentations, contrary to the usual practice of horologists and other mechanicians, had a reduplication of circumferential potent energy imparted to them as homogeneous solids moving around a permanent axis, not by pressure alone, but also by the cohesion of the molecules of matter that constituted the periphery of the once quiescent discs; and that the line of pressure, being toward the center, directs these aggregate combinations of force into a polygon, which finally collapsed, and the tangible forces, rushing off at a tangent, imparted motion to the material discs or wheels, the velocity ration of which was equal to the quintessence of the aliquot part of the circumference of the discs, if no unguent be used."

Our boss, after this volley of science, was perfectly stunned, his glasses fell from his eyes, he gasped for breath and could not utter a word in reply but; our watchmaker was quite unconcerned, and thought the explanation a clear one; but that while he could never believe that there was the same amount of friction on the narrow surface as on a broad one, still, there could be nothing plainer than that when the polygon burst, the force flew off at a tangent, and gave motion to the wheels. In fact, when he was in New York, he had often seen the same thing himself. That day the old scientific gentleman went away proud that his own learning had been appreciated, and happy that our town possessed such an intelligent young man.

It is to be regretted that too much pretentious New York knowledge and too much science at one time, squelched our boss, nevertheless, it is to be hoped that his practical experience on friction will be made public on some future occasions.



Directed by
W. H. SAMELIUS, Chairman
Science of Horology and Technical Advisory Board

S.W.:—What can be done and what is the best treatment to restore a watch that has been in salt water?

Ans:—The owner or watchmaker should immediately open the case and flood the watch with benzine or kerosene. In their absence, use pure alcohol. There is a slight objection to using benzine as benzine in the process of distillation sometimes leaves a trace of acid that is carried over in the benzine. After cleaning a watch that has been in salt water and the parts have been dried, the steel parts should again be boiled in alcohol to which some freshly slacked lime has been added.

A.L.:—Can you give any information as to how I can get a bright cut on aluminum?

Ans:—Make certain the cutting edge of your graver is sharp and properly polished. The following mixture has been recommended.

4 Parts Oil of Turpentine.
1 Part Stearine.
1 Part Rum.

Cover the surface to be engraved with a thin coating. You can then engrave aluminum, obtaining a bright cut, the same as any other soft metal.

T.S.:—Some time ago I accepted a tortise shell comb for repairs. I tried to repolish the surface but failed. Can you give a method for polishing tortise shell?

Ans:—After the rough surface or deep marks have been smoothed out with a fine file, use fine sand paper and finish the surface with pumice powder applied with a wet felt pad. To polish, use subnitrate of bismuth applied with the palm of the hand, rubbing until a fine polished surface appears.

A.E.:—We have a 16S watch that keeps time within 20 seconds per week. My partner thinks if there were less end play in the balance and less side shake in the pivots, the watch would run closer. I do not think less end play in the pivots would improve the rate of the watch.

Ans:—The action of the balance pivots in a balance hole jewel, if the pivots are small, is of a climbing nature when the watch is in a hanging position. Therefore, large hole jewels would cause irregular vibrations. Excessive end play is equally bad, but if the pivots are perfectly cylindrical, then the excess of end play would not be as serious provided that the pivots would extend the full length of the hole and not simply the end of the pivot bearing only in part of the hole. We do not say excessive end shake is the correct thing and favor your partner's view. Close fitting pivots and close end play always help to better the time keeping qualities of any watch.

A.H.G.:—Can you name some of the railroad watches used some 50 years ago?

Ans:—From records, we find that a watch inspectors convention held in 1890, due to such a large number of watches accepted as standard for railroad service, the number was reduced to 22 makes and kinds. The ruling was that all watches going into service from that date must be adjusted to five positions and temperature and so stamped on the plate. The watch must have a double roller, be lever

set, wind at 12 and have a plain Arabic dial, with heavy hands. All new American watches should have the standard mark or number stamped on the plate. 12 S. watches are not considered standard for railroad work and will not be accepted. After considerable deliberation, a new accepted schedule was decided upon as follows:

Waltham—Vanguard 23 jewel.
—Crescent St., 21 jewel.
—Riverside, 19 jewel.

Elgin—Veritas, 23 jewel.
—Father Time, 21 jewel.
—B. W. Raymond, 19 jewel.

Hamilton—No. 059, 23 jewel.
No. 992, 21 jewel.
—No. 996, 19 jewel.

Illinois—Sangamo Special,, 23 jewel.
—Bunn Special, 21 jewel.
—Bunn, 19 jewel.

Hampden—Special Railway, 23 jewel.
—New Railway, 21 jewel.
—Railway, 19 jewel.

South Bend Special Railroad, 21 jewel, No. 227.

Howard Watch Co.—23 jewel.
—21 jewel.
—19 jewel.

Ball Official Railroad—Standard 23 jewel.
—Standard 21 jewel.
—Standard 19 jewel.

S.P.:—Occasionally I am called on to repair steel spectacle frames. During this operation, when completed, the frames will show solder marks and become discolored. How can I restore the surface and blue color?

Ans:—First remove the discolored surface by polishing with a very fine emery buff, then, by heating fine, clean sand in a dish, placing the spec frame in same and heating the sand until the frames turn blue. This requires patience and time. Some workmen simply polish the frame and then by passing the frame thru an alcohol lamp flame, the blue color can be obtained, coloring the surface where repairs were made.

Stanley Prokop, Clockmaker

Stanley Prokop—Clockmaker, extraordinary—is closing his place of business and entering the United States Naval Reserve to aid his country to the best of his ability. He wishes to notify all of his customers that until hostilities have ceased he will not be in a position to serve his clientele further.

Spandorfer — Company Open Branch Office

In order to serve their clientele in South Carolina, Spandorfer & Company have opened a branch office at the Emaxcee Building in Greenville, South Carolina.

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Representatives of the Accredited Trade Schools will meet in Chicago during the National Convention at Hotel Morrison—May 17th-19th.

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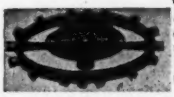

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Treasury Department

Bureau of Internal Revenue
Washington, D. C.

The correct preparation and early filing of Federal income tax returns are always important. This year, more than ever before, the necessity for prompt attention to this matter is apparent to everyone. Approximately 22,000,000 income tax returns are due to be filed before midnight of March 16, 1942. Of this number it is estimated that 7,000,000 persons will file income tax returns for the first time.

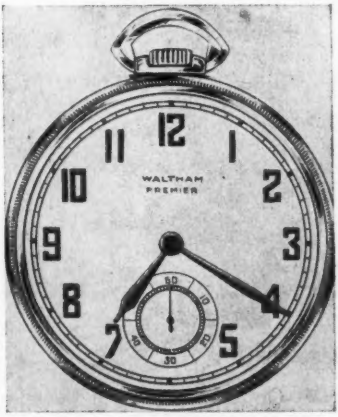
To assist taxpayers in the preparation of their income tax returns the Treasury Department has issued a folder entitled "How to File Your Income Tax Return the Simple Way." It contains a facsimile of the simplified Form 1040A and illustrates the six steps required to prepare the return. Form 1040A may be used by persons who are required to file returns but who have gross incomes of not more than $3,000 from salaries, wages, compensation for personal services, dividends, interest, rent, annuities, and royalties only.

For taxpayers not eligible to use Form 1040A or those not choosing to use it, Form 1040 should be filed. The last page of the folder contains a table showing the individual income tax on 1941 net income before deductions of personal exemptions and credit for dependents from salaries and wages of selected sizes if Form 1040 is used.

Individuals, and corporations desiring the folder for distribution to employees, may secure copies from the nearest Collector of Internal Revenue.

Walthams New Watch

Just "four score" years ago President Abraham Lincoln owned and carried a Waltham watch. It was his only constant and inseparable companion throughout the momentous war years. Mr. Lincoln had many important appointments during this try-



The New Lincoln

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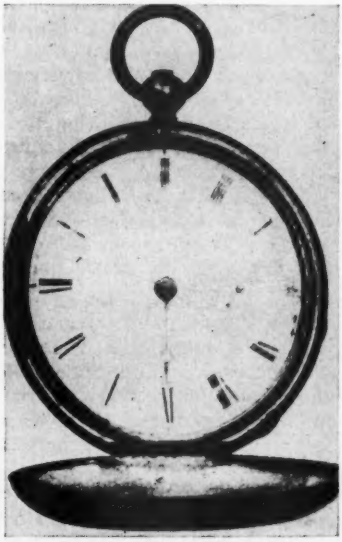
ing period and they were timed by his Waltham watch. Obviously, Waltham is proud to have been selected and so honored.

Carl Sandburg in his monumental biography of Lincoln has brought these facts to light and illustrates this famous watch in his book. It was a heavy, silver-cased, 11 jeweled Waltham, William Ellery model, key wind, No. 67613. This watch is now treasured in a private collection and it still runs.

Accordingly, it seems fitting and proper to name one of the new Colonial thin, spherical dial pocket watches the "Lincoln," in honor of our beloved President. This new Waltham Premier model will be available in January.

Proud of its American heritage, Waltham is featuring Lincoln and his Waltham watch in a full page advertisement in the February issue of Esquire magazine. Colorful, patriotic counter and window cards will be mailed to retail jewelers throughout the country in January.



"Abraham Lincoln's Watch"

Quality Goods, Quality Merchandising

By CARROLL J. SWAN

Applying the theory that quality merchandise requires quality merchandising, Jacques Kreisler Manufacturing Company, of North Bergen, N. J., has in the last eight years developed a lively men and women's jewelry business out of an organization that was practically wiped out by the depression. Before the crash the company had operated as a diamond and platinum jewelry manufacturer, but with hard times the business suffered.

Then, through a reorganization, its efforts were turned toward the manufacture of merchandise of a more generally popular nature although still in the quality field. At first, due to previous experience in the wrist watch field watch attachments were selected as a logical type of merchandise for which a market could be cultivated. To the watch-attachment business, a complete men's line of jewelry was added about three years ago, and one year ago a women's line.

In the development of this business, advertising and good dealer relations have always been closely associated. They have worked hand in hand to create distribution of the merchandise to dealers' shops and to create salability of Jacques Kreisler jewelry to the type of people who shop at the reputable retail jewelry stores. One of the principal points in this connection is that the only retailer customer of the company is the jewelry stores; and another is a resale price system that allows for a good mark-up. This gives the retail jewelers a chance to feature an advertised line of quality merchandise that can be had nowhere else—at a profit. It naturally results in friendly relations and a cooperative spirit toward the company.

Shirley Temple, the million dollar baby of motion pictures, was the Christmas present of the Elgin National Watch Company, to the nation's radio audience this year, when they sponsored the child star in a four weeks series over CBS (Fridays, 7 p. m. PST).

The child actress, who was essaying the first radio series of her career, took to the microphone like a veteran. It wasn't her first time on the air—she had made previous experimental broadcasts for Radio Theater and several benefit broadcasts—but it was her first serious radio venture in programs designed especially for her.

Although other sponsors had been making offers for more than five years to the little favorite, Elgin was the first to be successful in getting Shirley to do a radio series.

In the four programs, Shirley played herself, a girl of 12—going on 13. Fans who adored the actress as a baby star were not disappointed in her as an adolescent. She had the same magical quality of her younger personality plus unexpected skill as an actress.

Elgin Employees Benefit from Relief and Pension Funds During Past Year

ELGIN, ILL.—During the period from October 1, 1940 to September 30, 1941, employees of the Elgin National Watch Company received over $200,000 in relief benefits and pension fund payments, it was recently announced by John M. Biggins, Secretary-Treasurer of the company.

The Employees' Relief Fund, established in 1888 and with accumulated assets of $1,202,019.77, has paid out during the last year $22,707.00 for sick relief and $21,800.00 in mortuary benefits.

Forstner Chain Corporation Entertains Employees

Officers and principals of the Forstner Chain Corporation of Irvington, New Jersey, well-known jewelry manufacturers, played host on December 23rd to all co-workers of the plant at a mammoth Christmas party. More than 500 employees attended the dinner, which was held at the Irvington Elks Club.

A patriotic note was struck when William Forstner, president of the corporation, announced the distribution of Defense Bonds and Stamps to every employee as a Christmas bonus. Over $14,000 was distributed by three "special" Santa Claus' who were present for the purpose.

Mr. Forstner in his talk to the company outlined that for 1942 defense work comes first and all shoulders must be put to the wheel to see that a successful job is done.

The employees of the Forstner Corporation furnished their own entertainment, nor was there any dearth of talent. Max Rudert conducted the male chorus, Anna Cuccuzella, soprano, vocalized and Elsie Farr rendered several piano selections.

Mr. William Kastner acted as chairman of the dinner.

L. & R.'s Twelve Years of Service

In this, its twelfth year of business, L & R seeks momentarily to comment on the changes wrought not only in its products but in the attitude of the watchmaking trade, as well.

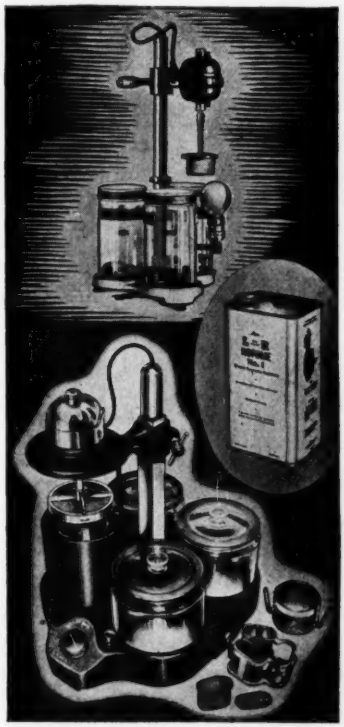
How different was the skepticism of more than a decade ago from the universal acceptance of L & R Products today. This feeling may well have been justified, for the perfection of the watch cleaning machine by L & R was the first major development in the interest of the watchmaker in many a long year.

It was too radical a step forward for many to comprehend. Most watchmakers were too steeped in the traditions of their predecessors. If ever a product received the supreme acid test, it was the L & R Watch Cleaning Machine. That it emerged with flying colors is definitely indicated by the many thousands of L & R Machines now in constant use.

With the attitude of watchmakers, L & R has progressed, too. The accompanying illustration pictures the first L & R Machine and the comparatively new Heavy Duty model. The improvements are evident, the refinements definite and noteworthy. The L & R Heavy Duty is the only machine of its type that cleans three watches at one time in individual baskets. It features a drying compartment with a separate motor driven fan which sends warm air from a heater unit through all parts in the basket. The base, jars, motor, centering column, reversing action and other elements have also been improved and are certainly eminently more functional.

Keeping pace with the machine, L & R Solutions are as up to date as their chemical laboratory can formulate them. The new Waterless Nofome has met with unprecedented approval. Its sale in 1941 has broken records of all former L & R Solutions. The reasons are obvious. It completely eliminates all rust possibility, produces far superior results, saves an amazing amount of time and is the easiest cleaner in the world to use.

In the past year the L & R factory personnel has doubled, additional precision machinery has been bought. Even this increased staff is now being augmented. For, coupled with increased watchmaker business, L & R is heavily engaged in manufacture for the Army and Navy in the interest of National Defense.



L & R urges watchmakers to place far-sighted orders with their jobbers, now, for all material requirements. War days demand mutual cooperation and L & R stands on its record 'to keep 'em rolling'.

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If you are in need of a watchmaker send for our list of competent workmen. Free Service. Henry Paulson Co., 37 S. Wabash, Chicago.

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Watchmaker wanted immediately. Good permanent job. Send qualifications. The Dixon Jewelry Co., North Platte, Nebraska.

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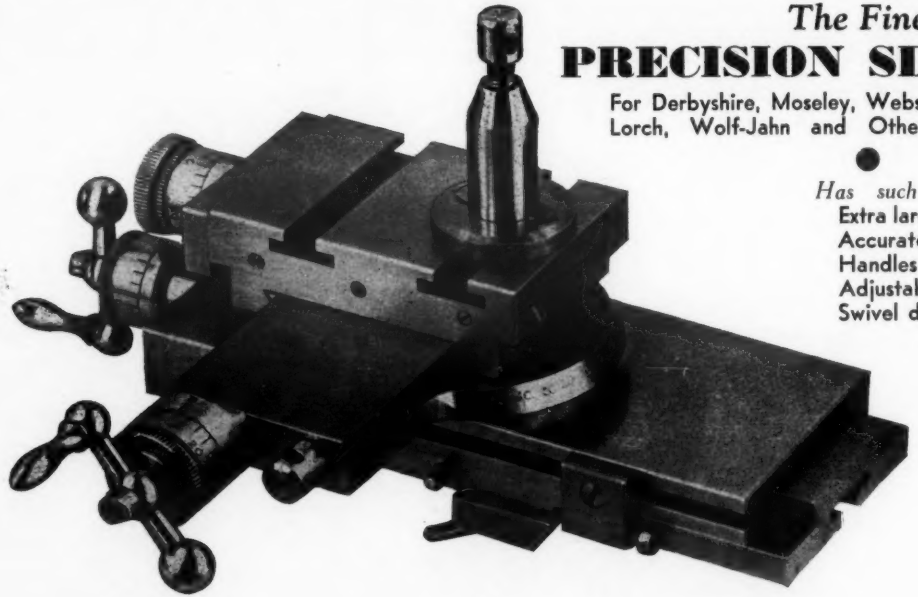

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